Stations Along The Trail

Station 1: The Late Seral Stage

The Bureau of Land Management harvested this area in 1947, leaving large seed trees to naturally regenerate the area. The tree stumps scattered throughout are remnants of this past harvesting, taking many years to decompose. The canopy is tight with only small amounts of sunlight seeping through. The understory is full of shade tolerant shrubs aggressively competing for space and light, and the intermediate canopy is beginning to layer with deciduous trees.

Station 2: Springboard Stumps

Stumps like this one are remnants of the days when trees were cut using human power rather than chainsaws. Using a crosscut handsaw, it was extremely difficult to cut trees close to the ground, where the wood is dense and the trunk is wider. To overcome the problem, loggers cut notches above the flared base and inserted several "springboards" on which to stand while they cut. The stump that remained was much taller than those left by the present day mechanized falling techniques.

Station 3: Riparian Zones

Riparian zones occur along the banks of natural courses of water. They are defined by a strip of deciduous trees and lush understory vegetation. These zones sustain an abundant diversity of plants and animals. Moisture dependent plants usually not found in other areas of the forest thrive here. Riparian zones can be observed at each wooden bridge. In the fall, Coho salmon and cutthroat trout swim in the stream beneath the bridges.

Station 4: Bearing Tree

This tree bears the location of a brass cap corner marker, a surveyed geographic monument used in legal mapping descriptions. Since the brass cap can easily be covered up by vegetation, large trees are chosen for location markers. The yellow sign on the bearing tree describes the distance and direction to the cap. There are two visible western redcedar "bearing trees" located here.

Station 5: Log Jams & Nursing Logs

An old growth Douglas-fir tree has fallen across the stream. The decaying bark now nurses the growth of plants and tree seedlings. Log jams also create shade and stream structure. The small ponds created by the log jam provide habitat for fish, frogs, salamanders, and other aquatic life. Fallen branches and trees are called coarse woody debris and are very important components of forest ecosystems. Coarse woody debris provides habitat for animals and insects, and as it decays it puts nutrients in the soil.

Station 6: Lighting Tree

On July 17, 1995 a thunder storm passed over the orchard. Lighting struck an old growth Douglas-fir above the trail, ripping out the side of the tree. A large piece of wood speared into the ground below the trail. A short path to the lighting tree lies 50 feet ahead. If conditions had been right, a wildfire may have started. Wildfires can be beneficial to forest succession. They accelerate decomposition or the breaking down or decay of organic matter, consume understory debris, and germinate dormant seeds. Fires also increase the amount of available space and sunlight, allowing new plants to establish themselves.

Station 7: Early Seral Stage

This stand was harvested in 1992 and replanted with superior Douglas-fir seedlings. Plants and shrubs blanket the ground. Scotch broom, blackberry, and vine maple create wall of vegetation and aggressively compete with Douglas–fir and other conifer seedlings. A bat box, which houses up to 400-500 bats, is also located here. Bats are beneficial to the orchard because they eat insects that cause Douglas-fir cone damage and seed loss.

Station 8: Old Growth Seral Stage

This area represents the climax stage of forest succession. It is characterized by broken tree tops, standing dead trees (snags), multiple species layering, and massive Douglas–fir trees. Mosses and lichens cover trees, logs, and branches. Coarse woody debris is abundant. Canopy openings are large, and the earlier stages of succession are present in small pockets throughout.

Station 9: Windthrow

Windthrow is an event where trees are blown over by large gusts of wind, literally ripping them out of the ground. It is characterized by fallen trees with large root wads sticking out of the ground. Trees that have fallen over due to laminated root rot, a naturally occurring disease that eats away the roots of conifers, will have similar characteristics. Standing trees with root rot often appear healthy, but are actually unstable and can easily be knocked over with a gentle breeze. Windthrow and root rot are distinguished by the angle of the fallen trees. Windthrow trees lie in one direction determined by the wind direction of the storm, but trees with root rot fall randomly in any direction at any time.

Station 10: Underground Streams

If you listen closely, you will hear water trickling. There is a naturally occurring underground stream beneath you. A large amount of debris has built up here over time, creating a natural bridge over the water. As the stream moves through the ground, it becomes naturally filtered and purified, improving the quality of the water.

Station 11: Mid Seral Stage

This stand was harvested and planted in 1980. Douglas-fir grows its fastest at this stage, shading out deciduous trees, shrubs, and other plants. This area was thinned in 1993, reducing the number of trees in the stand to 179 trees per acre, which decreased competition and accelerated the growth of the remaining trees. Thinning operations imitate the historical role of regular, low intensity fires, which speed up forest succession by reducing the competition for light, water, nutrients, and space. Today most wildfires are suppressed for property protection and public safety.

Station 12: Late Seral Stage

This area was harvested in 1957 and has just entered the Late Seral Stage. The Douglas-firs are growing close together, creating a closed canopy. Species diversity is relatively low. Eventually some of the Douglas-firs will fall, increasing diversity through canopy layering and understory regeneration.

Know Before You Go

Amenities include a picnic area with barbeque grill, a scenic overlook with shelter, a visitor reception area with interpretive displays, restroom facilities, plant identification signs, and parking. There are no fees at this site.

The orchard is usually open Monday through Friday (8:00 a.m. to 4:30 p.m.), but it is recommended that visitors call ahead.

Orchard Rules and Regulations

- Camping is prohibited.
- Pets must be leashed and under the control at all times.
- Fishing is prohibited.
- Open fire in designated barbeque grill only. Never leave fire unattended.
- Discharge of firearms, firecrackers, or other fireworks is prohibited.
- After traveling through a closed gate, close it behind you.
- Littering is prohibited.
- Do not disturb plants or wildlife.

Directions to the Site

From Eugene, Oregon, travel west on the Beltline Highway to West 11th Avenue. Turn left on West 11th Avenue and follow to Bailey Hill Road. Turn right onto Bailey Hill Road which becomes Lorane Highway and travel 12.5 miles. Turn left onto Territorial Road and continue 6 miles to the town of Lorane. Turn right onto Siuslaw River Road and proceed 3 miles to the Tyrell Seed Orchard located on the right side of the road.

District Contact Information

Travis Tyrrell Seed Orchard

Bureau of Land Management
26350 Siuslaw River Road
Lorane, OR 97451

(541) 683-6445

www.or.blm.gov/eugene

BLM/OR/WA/GI-05/033+1122.32

Travis Tyrrell Seed Orchard

Forest Succession Trail

BLM

Eugene District

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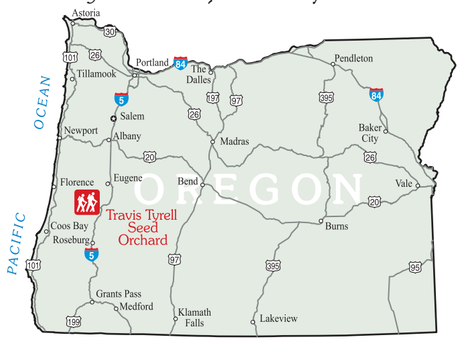
Welcome to the Forest Succession Trail at Travis Tyrrell Seed Orchard

The Travis Tyrrell Seed Orchard is nestled on the eastern side of the Oregon Coast Range in the Siuslaw River Valley, 20 miles southwest of Eugene. The Eugene District Bureau of Land Management (BLM) manages the 500 acre orchard for the production of conifer seeds with superior characteristics in growth, form, and/or disease resistance. The seed is sown in nurseries to produce seedlings that are used by the Federal government and private companies to replant areas following timber harvest and environmental disturbance. The majority of the seed produced is Douglas-fir. Future seed production may include western redcedar, incense cedar, Port-Orford-cedar, western hemlock, grand fir, Sitka spruce, knobcone pine, Jeffery pine, western white pine, ponderosa pine, and shore pine. The purpose of the Tyrrell Seed Orchard is to increase forest productivity, improve forest health, and maintain genetic diversity within the forest.



The Forest Succession Trail at Tyrrell Seed Orchard is a self-guided trail that provides visitors with an opportunity to pass through the various stages of forest development, ranging from a recently planted reforestation stand to an old growth grove. Forest succession is the gradual replacement of one plant community by another until a stable climax community is reached. A plant community is a collection of plants that require the same conditions for growth (e.g., soil, elevation, moisture, sunlight). The trail is .75 mile long one-way with benches for resting along the way. Various trees and plants along the trail are labeled for easy identification, and the stations referred to in this brochure are clearly marked with wooden signs. On the Forest Succession Trail, visitors will enjoy a scenic hike and observe wildlife and aquatic species while learning about the stages of forest succession, native plants, and natural forest processes.

While at the Travis Tyrrell Seed Orchard, visitors can also enjoy the other educational opportunities offered on site. The tree arboretum and demonstration area contain over forty trees native to the western United States with each species labeled for easy identification. The self-guided auto tour provides visitors with a close-up view of seed orchard management in the Pacific Northwest. Displays in the visitor area of the seed orchard office teach visitors about seed orchard management, forest genetics programs, and plant identification. Visitors can even learn from the landscaping surrounding the office, which is signed for easy identification.

The Travis Tyrrell Seed Orchard is usually open Monday through Friday (8:00 a.m. to 4:30 p.m.). We recommend that visitors call ahead.

Stages of Forest Succession

The five main stages of forest succession are Early, Mid, Late, Mature, and Old Growth Seral. Seral refers to a collection of plants and animals in a temporary phase of ecological succession. The stages defined below are for the Douglas-fir/red alder/vine maple community, which consists largely of Douglas-fir with other trees such as red alder, big leaf and vine maples, western redcedar, western hemlock, and Pacific yew scattered throughout.

The Early Seral Stage occurs following a disturbance to 15 years old and is often referred to as the Pioneer Stage. Disturbances that could initiate this stage of succession include landslides, fire, timber harvest, and wind storms. Plants that thrive in this phase take the opportunity to grow and reproduce fast and are therefore called opportunists. They scatter their seeds widely and quickly take over large areas. In this stage, Douglas-fir seedlings must aggressively compete with shrubs such as vine maple and blackberry for space and light.

The Mid-Seral Stage occurs from 16 to 45 years old. Douglas-fir and other coniferous trees such as western redcedar and western hemlock begin to grow above the shrub layer and create a canopy of shade. Plants, shrubs, and weak trees no longer receive enough sunlight and die off. Relatively few shrubs remain on the forest floor and competition for light and space is fierce among the conifers; only the fittest will survive.

The Late Seral Stage, which takes place from 46 to 80 years old, is characterized by canopy layering and understory restoration. Canopy layering refers to the formation of an intermediate canopy beneath the large overstory conifers. The intermediate canopy contains smaller deciduous trees like Pacific dogwood, chinquapin, and maple. Deciduous trees lose their leaves in the fall, unlike conifers which retain needles throughout the year. Understory restoration is the growth of plants on the forest floor. Most of these plants are shade tolerant, meaning they can survive without direct sunlight. Species diversity is higher in this stage than in the previous stages, and the coniferous trees continue to grow bigger and stronger.

The Mature Seral Stage occurs from 81 to 195 years old. In this phase, openings in the canopy increase as some large Douglas-firs die of windthrow, disease, and other natural causes. The openings created in the canopy allow shade intolerant plants to mature and multiply. Western hemlock and western redcedar grow larger, capitalizing on the growing space created by the fallen Douglas-firs.

The Old Growth Seral Stage takes place in forests 195+ years old. This is also referred to as the Climax Stage because the forest has reached a relative peak in succession. However, the earlier stages of succession are occurring in areas where a disturbance has been created by wind, flooding, and disease. Massive, old growth Douglas-fir tower above a layer of shade tolerant western redcedars and hemlocks, and a layer of shrubs persists where light is available. At this stage, the forest ecosystem is very complex and species diversity is at its highest.